Amendments to the Claims

Claims 37-45 and 53-63 are pending. Claims 64-67 are new. Claims 37, 48 and 53 are currently amended. The Claim Listing below will replace all prior versions of the claims in the application:

Claim Listing

Claims 1-36 (Cancelled)

Claim 37 (Currently Amended): A biological cell processing system, comprising:

i. a supply module having a plurality of supply containers, each configured to store a respective process chemical;

ii. a cell module;

iii. a processing module having a processing chamber, the processing chamber defining a processing chamber volume;

iv. a control module, wherein the control module changes the processing chamber volume based on a volume of fluid in the processing chamber;

v. a fluid distribution module comprising:

a plurality of ports connectable through a set of conduits to the supply module, the cell module, and the processing module;

a plurality of sealed channels in fluid communication with the plurality of ports for transferring fluid from one port to another port of the plurality of ports at least a portion of each of the plurality of sealed channels defined by a flexible membrane;

a plurality of valves, each valve of the plurality of valves associated with a respective port and aligned for displacement of the flexible membrane to control transfer of fluid, the valves adapted to the control module, and individually adapted to either the supply module, the cell module or the processing module, the operation of the valves being regulatable by the control module; and

vi. a plurality of sensors all adapted to the control module and individually adapted to either the supply module, the processing module or the cell module, the system being closed to environmental contaminants and providing for sterile processing of the biological cells,

wherein a processor of the control module is configured to receive data from the plurality of sensors and continuously control the processing module to maintain processing conditions substantially independent of an amount of biological cells provided for processing.

Claim 38 (Previously Presented): The system of claim 37, wherein the sensors further include pressure detection devices, optical detection devices, mass flow devices, temperature detection devices, volume determination devices or volume detection devices.

Claim 39 (Previously Presented): The system of claim 37, wherein each of the supply containers stores different process chemicals.

Claim 40 (Previously Presented): The system of claim 39, wherein the process chemicals are selected from the group consisting of: citric acid, sodium phosphate, sodium chloride, water, polyethylene glycol, saline, isotonic buffers, glycan modifying enzymes, and glycan modifying enzyme buffers.

Claim 41 (Previously Presented): The system of claim 39, wherein the process chemicals are sterile.

Claim 42 (Previously Presented): The system of claim 39, further comprising a filter positioned between the supply module and the processing module, the filter having a median pore diameter of about 0.2 microns.

Claim 43 (Previously Presented): The system of claim 37, further comprising a leukocyte depletion filter positioned between the cell module and the processing module.

Claim 44 (Previously Presented): The system of claim 37, wherein the processing module further comprises a centrifuge system.

Claim 45 (Previously Presented): The system of claim 37, wherein the processing module further comprises a heat transfer system.

Claim 46 (Cancelled)

Claim 47 (Cancelled).

Claim 48 (Currently Amended): The system of ~~claim 47~~claim 37, wherein the processing module further comprises an expressor system.

Claim 49 (Previously Presented): The system of claim 37, further comprising a compressor, an air reservoir, and a filter.

Claim 50 (Previously Presented): The system of claim 49, wherein the filter has a median pore diameter of about 0.2 microns.

Claim 51 (Previously Presented): The system of claim 37, further comprising a waste module.

Claim 52 (Previously Presented): The system of claim 37, wherein the fluid distribution module further comprises a plurality of pumps adapted to the control module and the supply containers.

Claim 53 (Currently Amended): A biological cell processing system, comprising:

i. a supply module having a plurality of supply containers, each configured to store a respective process chemical;

ii. a cell module having blood cells therein;

iii. a processing module having a processing chamber, the processing chamber defining a processing chamber volume;

iv. a control module, wherein the control module changes the processing chamber volume based on a volume of fluid in the processing chamber;

v. a fluid distribution module comprising:

a plurality of ports connectable through a set of conduits to the supply module, the cell module, and the processing module;

a plurality of sealed channels in fluid communication with the plurality of ports for transferring fluid from one port to another port of the plurality of ports at least a portion of each of the plurality of sealed channels defined by a flexible membrane;

a plurality of valves, each valve of the plurality of valves associated with a respective port arid aligned for displacement of the flexible membrane to control transfer of fluid, the valves adapted to the control module, and individually adapted to either the supply module, the cell

module or the processing module, the operation of the valves being regulatable by the control module; and

vi. a plurality of sensors all adapted to the control module and individually adapted to either the supply module, the processing module or the cell module, the system being closed to environmental contaminants and providing for sterile processing of the biological cells,

wherein a processor of the control module is configured to receive data from the plurality of sensors and continuously control the processing module to maintain processing conditions substantially independent of an amount of biological cells provided for processing.

Claim 54 (Previously Presented): The system of claim 53, wherein the blood cells are erythrocytes.

Claim 55 (Previously Presented): The system of claim 54, wherein the blood cells have genotypes A, B or AB.

Claim 56 (previously Presented): The system of claim 37, wherein the fluid distribution module comprises a pump for transferring fluid through the fluid distribution module.

Claim 57 (Previously Presented): The system of claim 37, wherein the plurality of conduits comprises a single use disposable device for transferring fluid from one port to another port of the plurality of ports.

Claim 58 (Previously Presented): The system of claim 37, wherein the plurality of sensors comprises a weight sensor for providing the weight of each process chemical to the control module, wherein the control module confirms a correct amount of each process chemical has been transferred by measuring change of weight of the process chemicals stored in the supply module.

Claim 59 (Previously Presented): The system of claim 53, wherein the fluid distribution module comprises a pump for transferring fluid through the fluid distribution module.

Claim 60 (Previously Presented): The system of claim 53, wherein the plurality of conduits comprises a single use disposable device for transferring fluid from one port to another port of the plurality of ports.

Claim 61 (Previously Presented): The system of claim 53, wherein the plurality of sensors comprises a weight sensor for providing the weight of each process chemical to the control module, wherein the control module confirms a correct amount of each process chemical has been transferred by measuring change of weight of the process chemicals stored in the supply module.

Claims 62 (Previously Presented): The system of claim 37, wherein the processing chamber includes a movable wall to adjust the processing chamber volume.

Claims 63 (Previously Presented): The system of claim 53, wherein the processing chamber includes a movable wall to adjust the processing chamber volume.

Claim 64 (New): The system of claim 37, wherein the controller instructs the processing module to fill the processing chamber with expressor fluid based on data received from a pressure transducer disposed in the processing chamber such that different amounts of biological cells are subjected to the same centrifugal force and mechanical stresses due to packing.

Claim 65 (New): The system of claim 37 wherein the controller adjusts the temperature of the processing chamber based on data received from an IR temperature sensors disposed in the processing chamber.

Claim 66 (New): The system of claim 53, wherein the controller instructs the processing module to fill the processing chamber with expressor fluid based on data received from a pressure transducer disposed in the processing chamber such that different amounts of biological cells are subjected to the same centrifugal force and mechanical stresses due to packing.

Claim 67 (New): The system of claim 53, wherein the controller adjusts the temperature of the processing chamber based on data received from an IR temperature sensor disposed in the processing chamber.